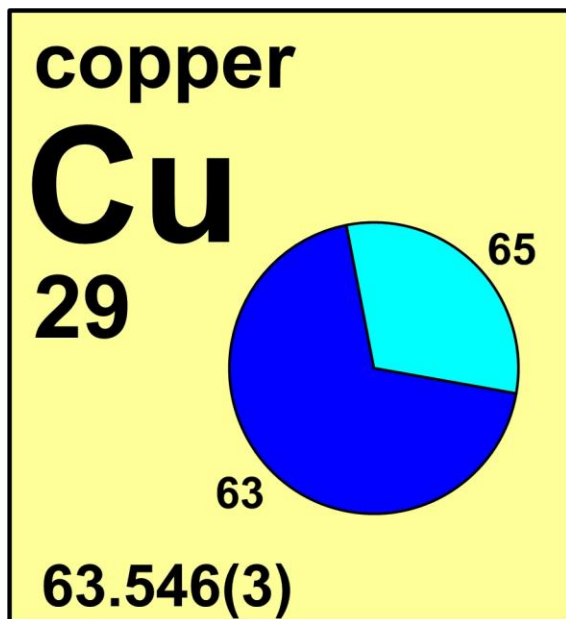


copper

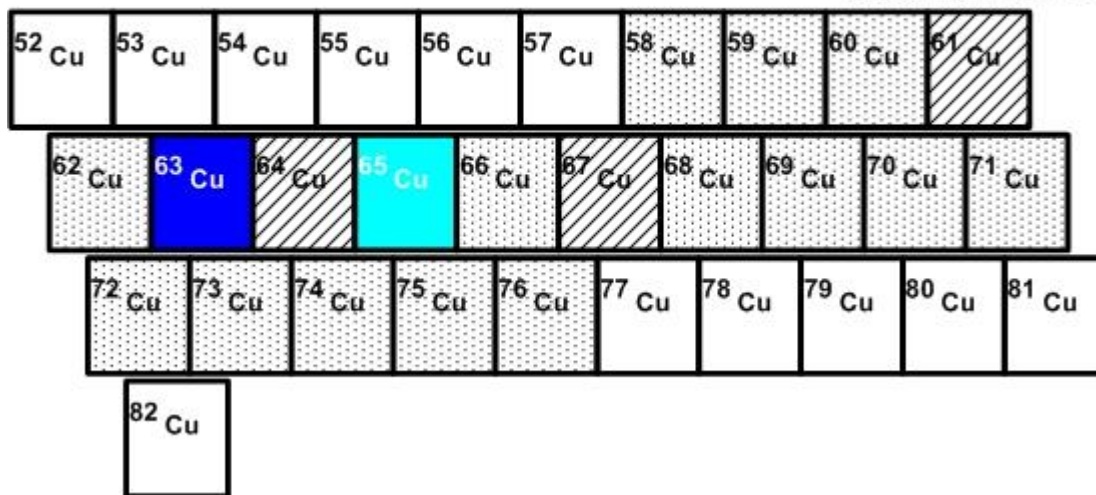


Stable isotope	Atomic mass*	Mole fraction
^{63}Cu	62.929 5975	0.6915
^{65}Cu	64.927 7895	0.3085

* Atomic mass given in unified atomic mass units, u.

Half-life of radioactive isotope

Less than 1 second
Between 1 second and 1 hour
Greater than 1 hour



Important applications of stable and/or radioactive isotopes

Isotopes in medicine

- 1) The radiopharmaceutical ^{62}Cu -PTSM, which contains radioactive ^{62}Cu , is used as a PET radiotracer to quantify myocardial perfusion (heart blood flow measurements).
- 2) The radioisotope, ^{64}Cu , is used for PET imaging and radiotherapy to diagnose, understand, and monitor diseases.

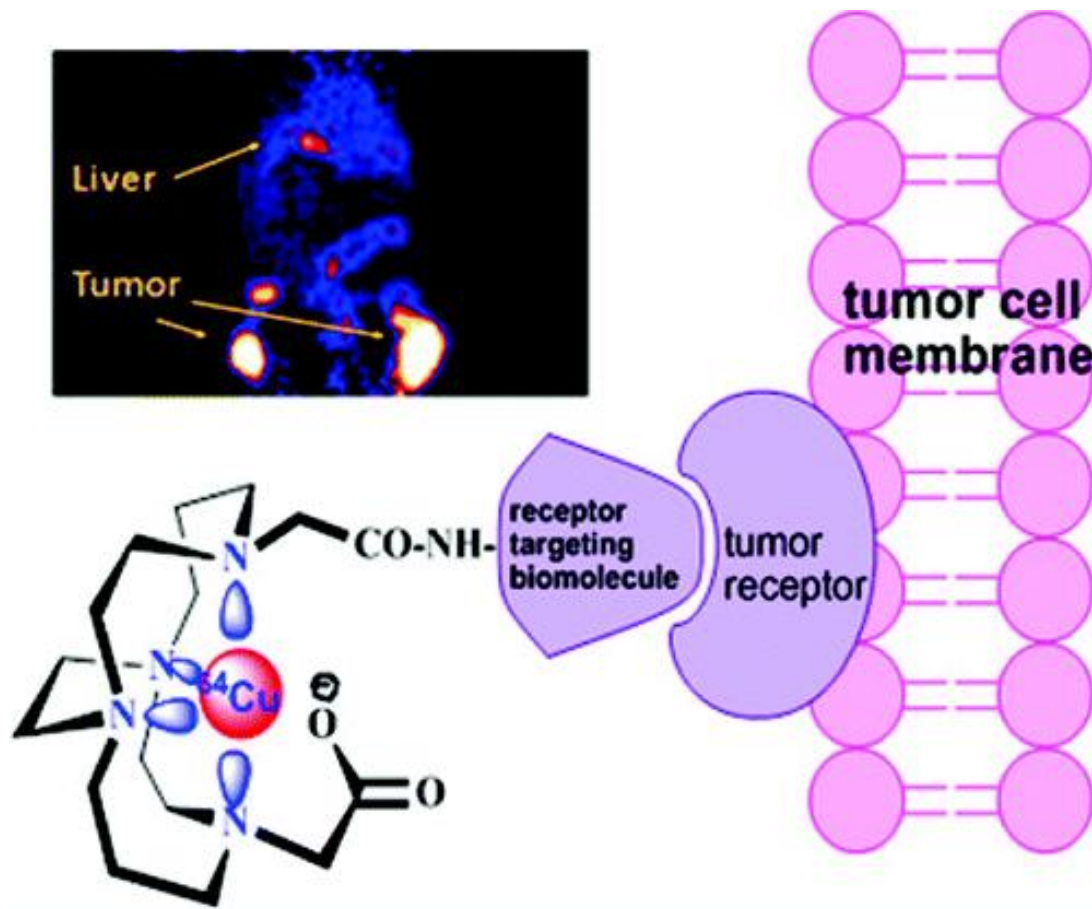


Figure 1: An illustration of a small animal PET system that uses the ^{64}Cu radioisotope to generate a reconstructed image of the animal in a noninvasive manner.

Isotopes in tracer studies/nutrition

- 1) Enriched stable isotope ^{65}Cu can be used as a marker for various studies such as copper metabolism or absorption in humans.